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This paper appeared as a Supplement to the JOURNAL of the  
American Oriental Society, Vol 66, No 1 (1946)

# SANSKRIT HISTORICAL PHONOLOGY

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## *Introductory note*

FOR MANY YEARS the present writer, like some of his colleagues in teaching Sanskrit to beginners, has tried to introduce them not only to the language, but in some measure to its history, or better prehistory. This has involved the attempt to provide a rudimentary but systematic account of Indo-European phonology in relation to Sanskrit. The account must be very simple, or the average beginner, who usually has little knowledge of either Indo-European or the comparative method, will find it hard to assimilate.

No previously printed work appears to contain a statement satisfactory for this purpose. The closest approach is Thumb's *Handbuch*, excellent as it is in many ways, it is not what seems to me required.

What follows is nothing more than an attempt to satisfy this want. It is intended to furnish, in as simple a form as possible, the barest essentials of the subject—just what it seems to me a beginner must have, in order to get a sound view of the basic system, and no more. Profundity is eschewed. Controversial matters are avoided as far as possible. There is no pretension to either completeness or originality. Most of what is said is commonplace to all Indo-Europeanists. Only in matters connected with the semi-vowels have I felt compelled to go beyond the standard handbooks, for reasons made clear in certain recent publications, the chief of which is cited in § 60 below.

The regular development of each Indo-European sound in Sanskrit is illustrated by (usually) a single etymological correspondence. At the end a table of Sanskrit vowels with their possible regular Indo-European correspondences, is provided. It has seemed unnecessary to do the like with the consonants.

My transliteration of Sanskrit follows that of Whitney and Lanman—the books commonly used by beginners in this country. I should have liked to use *ā* instead of *ṛ* and to omit the macron

over āi and āu, in accord with general usage today, hut after some hesitation have decided against it. After even more hesitation, I have decided not to print accents on Sanskrit words, except when they particularly concern the subject under discussion. My reason is purely pedagogic. In the first year of Sanskrit, at least as commonly taught in this country, the student encounters no accented texts. He sees accents printed only in grammars and vocabularies or dictionaries. Is it profitable, or wise, to try to burden him at this stage with the pitch accents, which have no practical value in helping him to pronounce the words (indeed quite the reverse)?

My thanks are due to a number of colleagues who have offered helpful criticisms; especially to Professor George S. Lane of the University of North Carolina.

## OUTLINE OF SANSKRIT HISTORICAL PHONOLOGY

1 Sanskrit (abbreviated Skt) in the following is always used in a wide sense to include the Vedic dialects. See the Introduction to Whitney's Grammar

2 Indo-European (abbreviated IE) is the hypothetical prehistoric language from which Sanskrit as well as many other languages of Asia and most languages of Europe are demonstrably derived. To distinguish it from its descendants, it is also often called Proto Indo European or Primitive Indo European (abbreviated PIE)

3 The Indo European languages (the historic descendants of this prehistoric language) are often divided into two groups, called the satem and the centum languages. This division is based on their several treatments of the IE guttural consonants, see § 21. The division is traditional and is sometimes convenient, but it suggests more than the proved facts justify. The two groups are distinguished by nothing else than their treatment of the gutturals. The classification should not be taken as meaning that each group is descended from an original distinct language more recent than Proto Indo European.

4. The satem languages are in general the eastern division of the family, geographically speaking. The principal satem languages are Indo Iranian (including Sanskrit and other Indic languages on the one hand and the Iranian languages of which the two oldest are Avestan and Old Persian, on the other), Armenian, Albanian and Balto Slavic.

5 The centum languages are in general the western group. Their principal representatives are Oreek, Italic (including Oscan, Umbrian as well as Latin), Germanic, and Celtic.

6 Illustrative examples in this outline will mostly be taken from Sanskrit, Oreek, Latin, and Germanic languages. The latter include Gothic (Gth), Old Norse (ON), Old English (OE), Old Saxon (OS), Old High German (OHO), and Old Frisian, besides later dialects. Occasionally cognates will be quoted from Avestan (Av), Lithuanian (Lith, a Baltic language), Old Slavic (and Russian), and Old Irish (OIr), very rarely from others.

7 The phonemic system of IE contained vowels, semivowels, and consonants.

### Consonants

8. The IE consonant system consisted almost wholly of *stops*. The following table shows the stops attributed to IE

Labials	p	ph	b	bh
Dentals	t	th	d	dh
Palatals	k	kh	ǵ	ǵh
Velars	k	kh	g	gh
Labiovelars	kʷ	kʷh	gʷ	gʷh

The palatals, velars, and labiovelars are called collectively *gutturals*

9 The *voiceless aspirates* ph, th, etc are indistinguishable from the voiceless non aspirates in all other languages than Indo-Iranian, except that Greek has aspirates for some of them (not all). Even in Sanskrit they are not very common, and not all of them can be illustrated by convincing etymologies in the other languages. The exponents of the Indo-Hittite laryngeal hypothesis derive them from pre-IE stops followed by laryngeals. Sturtevant, *Laryngeals*, § 78, cf. below, § 138. We shall ignore the voiceless aspirates for the most part.

10 *Germanic* correspondences can be understood only in terms of Grimm's Law and Verner's Law. By *Grimm's Law*—

and	<sup>1</sup> IE p, t, k	become	Proto-Germanic f, þ, h (ch)
	<sup>1</sup> IE ph, th, kh	"	" f, þ, h (ch)
	IE b, d, g	"	" p, t, k
	IE bh, dh, gh	"	" b, d, g

The Proto-Germanic sounds written b, d, g may have been voiced spirants rather than stops

11 In High German, some further shifts took place, thus, general Germanic p, t, k (from IE b, d, g) became either f (ff), s (ss), ch, or pf, ts, kh (k plus ch). These High German changes we shall not describe in detail.

12 By *Verner's Law*, Proto-Germanic f, þ, h (from IE p, t, k, or ph, th, kh) became voiced when the preceding syllable was not

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<sup>1</sup> However, after Proto-Germanic spirants {s, from IE s and f, þ, h) these sounds appear as Germanic p, t, k.

accented in IE. They then coincided with Proto-Germanic *b, d, g* (whether these were spirants or stops). Verner's Law also involves IE and Proto Germanic *s*, which changed to *z* when the preceding syllable was not accented in IE. In North and West Germanic (= all Germanic except Gothic) this *z* became *r*.

13 *The law of two aspirates, or Grassmann's Law* In Sanskrit and in Oreek (independently of each other), an aspirate at the beginning of a syllable loses its aspiration if another aspirate comes at the end of the same syllable or at the beginning of the next. In Oreek this change took place after the voiced aspirates had become voiceless  $\phi, \theta, \chi$ , consequently the deaspirated stops are always voiceless  $\pi, \tau, \kappa$  (not voiced  $\beta, \delta, \gamma$ ). Ex. IE stem *dhruǵh* 'injurious', Skt gen *ag druh as*, but nom *ag dhruk* (because in the nom the aspiration of the final is lost). Cf Gk. *τρίχος*, gen *sg* 'of the hair,' but nom *sg* *τρις* (IE *dhruǵh*).

14 IE *p* = Skt. *p*

IE septm 'seven' Skt *sapta*, Gk *ἑπτα*, Lat. *septem*, Gth OHG *sibun*, OE *seofon*, Eng *seven* (problematic as to loss of *t*, and as to *n* for *m*), OSlav *sedmъ* (Russ *семь*),\* also problematic.

15 IE *b* = Skt *b* (a strangely rare sound in IE)

IE root *bel-*, *bol* 'strong' Skt *bala-* 'strength,' *balaṣṭha* 'strongest', Gk *βελτιων, βελτερος* 'stronger', perhaps Lat *dēbilis* 'lacking in strength, weak', OSlav *bolъjъ*\* 'greater,' Russ *bólъje* adv, 'more,' *bolъshoy* 'great'

16 IE *bh* = Skt. *bh*

IE *bhū* (zero grade to *bhewə*) 'become, come to be, be' Skt. aorist 3 *sg* *a bhū t* 'became', Gk. *ἔφω*, OLat. *fu i* (later *ful*), GN OE OHG *bū* (noun) 'dwelling,' OE plur *by* (from a form with suffix containing *i*), Ger *Bau*, Lath *bātu*, infin, 'to be', OSlav *byti*, Russ *bytj* 'to be'

17 IE *t* = Skt *t*

IE stem *tri-*, nom pl masc *treyes* 'three' Skt. *tri*, *trayas*, Gk *τρι*, *τρις* (dial *τριες*, for *treyes*), Lat. *trēs*, Gth *þreis*, Eng *three*, OSlav *trъje*, *trije*, nt *tri*, Russ *tri*:

\* In Russian we represent a palatalized consonant by consonant plus *j*. In OSlav (Old Bulgarian Church Slavic) *ъ* represents a reduced vowel of *u* quality and *ѣ* one of *i* quality.

## 18 IE th = Skt th

In 2 sg perfect ending IE tha Skt. tha, Gk θα, Gth t, e g Skt. vet tha 'thou knowest', Gk ολο-θα, Gth wais t, Ger weisst

## 19 IE d = Skt d

IE dekṃ 'ten' Skt. daśa, Gk δεκα, Lat decem, Gth taihun (with n for m somewhat problematic), Eng ten, Lith deimt(s), OSlav desetъ (Russъ djesjatj) 'ten' (the Balto Slavic words originally collectives, 'a deced' with IE suffix ti)

## 20 IE dh = Skt dh

IE dhumo 'smoke, steam mist' Skt. dhuma 'smoke mist', Gk θυμος 'spirit, excitement passion', Lat fumus 'smoke', Lith dúmai, pl, 'smoke', OSlav dymъ Russъ dym 'smoke'

21 *The three series of gutturals* As was said above the IE languages fall into two groups as regards their treatment of these consonants

I In the eastern group—Indo Iranian Armenian, Albanian and Balto Slavic—the *velars* and *labiovelars* fall together, appearing as plain velars (that is the labiovelars lose the labialization), while the *palatals* in general become *sibilants*

II In the western group—Greek Italic Celtic and Germanic—the *palatals* and *velars* fall together while the *labiovelars* remain distinct

Group I is called the *satem* languages (Avestan satem '100'), Group II the *centum* languages (Lat centum)

22. *The Indo European palatals* In most of the *satem* languages these as we saw appear as *sibilants*. This is the case in Skt. as regards the voiceless *ḥ*

## 23 IE k̑ = Skt ç

IE kntom '100' Skt çatam Avestan satem, Gk (ε)κατορ, Lat centum Irish cét Welsh cant Gth hund, Lith šimtas OSlav stó husa sto (for vocalism see § 103)

24. But the II voiced palatals (non aspirate and aspirate) do not become sibilants before and after vowels in Sanskrit (In certain phonetic conditions they do or once did see §§ 39-40) Sanskrit is unique among all the *satem* languages in this respect

and strangely destroys the parallelism otherwise existing between voiced and voiceless consonants

## 25 IE $\tilde{g}$ = Skt $\tilde{j}$

IE root  $\tilde{g}ena$ ,  $\tilde{g}ona$ , zero grade  $\tilde{g}\tilde{n}$  'beget', numerous derivatives in most IE languages. Thus, IE  $\tilde{g}enos$  (nt) Skt  $\tilde{j}anas$  'tribe, people', Gk  $\gamma\epsilon\nu\omicron\varsigma$  'birth, race' etc., Lat  $genus$ . Slightly different suffix in Avestan  $zana$  'people' (note Iranian sibilant). See § 152 for  $\tilde{g}\tilde{n}$  to  $\tilde{h}$ . The root is lost, or nearly so, in Balto Slavic.

## 26 IE $\tilde{g}h$ = Skt $\tilde{h}$

IE root  $\tilde{g}hey$  zero grade  $\tilde{g}h$  'cold, snow', generally with  $m$  affixes (or is  $m$  part of the original root? not wholly clear). Normal grade Skt  $heman-$  'winter', Gk  $\chi\epsilon\iota\mu\epsilon\alpha$ ,  $\chi\epsilon\iota\mu\omega\nu$  'winter', Lith  $ziemà$ , OSlav  $zima$ , Russ  $zima$  'winter' (Note sibilants in Balto Slavic). Zero grade Skt.  $huma$  'snow',  $himà$  'winter', Gk  $(\delta\upsilon\omega)\chi\iota\mu\omega\varsigma$  'wintry', Lat  $bimus$  for  $hi$   $himus$  'two winters (1 e years) old'.

Related but problematic are Gk  $\chi\omega\nu\varsigma$  'snow', Lat  $hiems$  'winter', Avestan  $zaen$  'winter' (note Iranian sibilant).

27 The IE  $\tilde{e}lars$  and  $\tilde{labio}elars$  fall together in Skt as in the other satem languages. But tho their development is identical, it is two fold. (Slavic has a similar double treatment of them.)

In general, they both appear as plain velars (or gutturals) Skt  $k$ ,  $g$ ,  $gh$ .

But when followed by an Indo-European front vowel or semi vowel—that is, before IE  $e$ ,  $e$ ,  $i$ ,  $i$ ,  $y$  (which appear in Skt as  $a$ ,  $\tilde{a}$ ,  $i$ ,  $\tilde{i}$ ,  $y$ )—they are changed to Sanskrit palatals Skt  $c$ ,  $\tilde{j}$ ,  $h$  (But before Skt  $a$ ,  $\tilde{a}$  when these represent IE  $a$ ,  $\tilde{a}$ ,  $\tilde{o}$ ,  $\tilde{ö}$ , Skt regularly has gutturals.)

Note that *these Sanskrit 'palatals'* are, then, not derived from IE 'palatals' ( $k$ ,  $\tilde{g}$ ,  $\tilde{gh}$ ), but from IE  $k$  or  $k^w$ ,  $g$  or  $g^w$ ,  $gh$  or  $g^wh$ .

Confusing, however, is the fact that, as we just saw, the IE *voiced* palatals ( $\tilde{g}$ ,  $\tilde{gh}$ ), between vowels at least, *do* appear as Skt palatal  $\tilde{j}$ , and as  $\tilde{h}$  respectively the same sounds which, before IE front vowels and semivowels, also represent IE voiced velars and labiovelars.

In other words, Skt  $\tilde{j}$  and  $\tilde{h}$  are, in themselves, ambiguous as to

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\* Structurally and historically Skt.  $\tilde{h}$  may be classed as a palatal see § 45



origin. Not so Skt. *c*, which can only come from a velar or labiovelar (*k* or *kʷ*); for IE palatal *k* gives Skt. *ç*, a sibilant.

### 28. IE *k* = Skt. *k* or *c*

IE *krewas-*: Skt. *kraviṣ-* 'meat, raw flesh', Gk. *κρέ(ι)ας* 'meat.' Related: (o grade, different suffixes) Lith. *kraūjas* 'blood'; OE. *brēaw*, Eng. *raw*; (zero-grade IE *krū-*, before vowels *kruw-*) Skt. *krū-ra-* 'bloody, cruel'; Lat. *cruor* (IE *\*kruwōs*) 'blood'; OSlav. *krъvъ*, Russ. *krovj* 'blood' (IE *\*kruw-*).

In this group of words there is no opportunity for the double representation, which may be illustrated by the two closely related and almost synonymous adjectives Skt. *çukra-* 'bright' and *çuci-* 'shining, clear,' both from a root Skt. *çuc* or *çuk* 'shine.'

### 29. IE *g* = Skt. *g* or *j*

IE *awg-* 'be strong,' *awges-* 'strength': Skt. *ojas-* 'strength'; related are Lat. *augustus* 'mighty, exalted,' Lat. *augeō*; Gth. *aukan*, OE. *ēacian* 'increase,' Eng. *eke* (verb and adverb). But, from zero grade IE *ug-*, before a consonant, Skt. *ug-ra-* 'strong, fierce'

### 30. IE *gh* = Skt. *gh* or *h*

IE root *dhrewgb* (*dhrowgh*), zero grade *dbrugh* 'injure, deceive': Skt. *dhruh-yati* 'injures' (*d* for *dh* by Grassmann's Law, § 13; *h* before *y*), Vedic *drogha-* (IE *dhrowgbo-*) 'injury'; OSaxon *drigan*, OHG. *trigan*, Ger. *be-trügen*.

### 31. IE *kʷ* = Skt. *k* or *c*

Note: in Greek, the labiovelars (but not the plain velars) have double representation, determined by the following sound, like the velars and labiovelars in Sanskrit. Before *e* and *i* vowels they appear as dentals, *τ, δ, θ*, otherwise as labials, *π, β, φ*.

IE *kʷo-*, *kʷi-*, interrogative pronouns: Skt. *ka-* 'who?', *cid* (orig. 'what?', used only as adverbial particle, *kim* 'what?' is analogical both in initial *k-* and in ending *-m*); Gk. *πόθεν* 'whence?', *τίς* 'who?'; Lat. *quo-*, *qui-*, Gth. *hwas* 'who?', OE. *hwā*, Eng. *who*; and OE. *hwī*, *hwīu* 'how, why?', Eng. *why*; Lith. *kàs* 'who?'; OSlav. *klъto* (Russ. *кто*) 'who?', gen. *česo* 'whose?'

### 32. IE *gʷ* = Skt. *g* or *j*

(Cf. § 31, Note) IE *gʷōw-* 'cow, ox': Skt. *gāu-*; Gk. *βοίς*; Lat. *būs* (Oscan-Umbrian loanword, regular Latin would have

initial *v* ), OE *cu*, Eng *cow*, GSlav *gov-ędo*, cf Russ *govjádjina* 'beef'

IE *g<sup>w</sup>īwo* 'alive' Skt *jīva* 'alive', Lat. *vīvus*, Lith *gyvas*, OSlav *zhivъ*, Russ *zhiv* 'alive' Regular Greek *δ* perhaps in *δίατρα* 'manner of life' (In Greek *βίος* 'life,' cf § 147, *β* is problematic )

33 IE *g<sup>w</sup>h* = Skt *gh* or *h*

(Cf § 31, Note ) IE root *g<sup>w</sup>hen*, *g<sup>w</sup>hon*, *g<sup>w</sup>hn̥* 'emite, slay' Skt. *hanti* (IE *g<sup>w</sup>hen ti*) 'he slays,' noun *ghana* 'slaying' (both adj and noun, IE *g<sup>w</sup>hono* ), Gk *θαυω* 'I slay' (IE *g<sup>w</sup>henyo*), *φονος* 'murder' (— Skt *ghana* ), OHG *gund fano* 'war banner', Lith *genù*, 1 sg pres, *gunti* infin, 'drive (with blows)', OSlav *gъnati*, Russ *gnatj*, 'drive, hunt,' and general Slav noun *gonъ*, *gon* 'pursuit' etc (— Skt *ghana*, Gk *φονος*, Russ in compounds and derivatives, e g *gonjítj* 'drive')

34 *Sibilants* The only absolutely certain IE sibilant phoneme was

IE *s* = Skt *s*

IE *septm̥* 'seven' Skt *sapta*, Gk *επτα*, etc, see § 14

35 It is pretty certain that this *s* automatically became voiced *z* in IE in certain phonetic situations, in other situations it may have been otherwise modified Some believe that IE had a phonemically distinct *z*, at least, this seems to me doubtful

36 IE *þ*, and voiced correspondents Only after guttural consonants (*k*, *k*, *k<sup>w</sup>* etc ), IE seems in some words to show a set of mysterious consonants which appear as dentals (*t* etc ) in Greek and Celtic, but as *s* or *sh* sounds in Indo Iranian, Italic, Germanic and Balto Slavic. It is customary to assume that these consonants were similar to the voiceless English *th* in *this*, and its voiced counterpart in *thus* The sounds are written *þ*, *ð*, *dh* It seems to me doubtful whether our current theories have got at the truth on this point. A simple instance of the voiceless sound

IE *þ* (?) = Skt *ś*

IE *rkþo* 'bear' (the animal) Skt *ṛkṣa*, OI *ἀρκτος*, Lat *ursus*, Middle Irish *art* 'bear'

37 *Sanskrit 'linguals' or 'dental' or 'cerebral'* Sanskrit has a series of sounds, transliterated *ṭ*, *ṭh*, *ḍ*, *ḍh*, *ṇ*, *ṣ* called by the above (or still different) names, which have no correspondents in any

other Indo-European language. So far as they are of IE origin at all, these domals mostly are modifications of IE dentals.

38 The dental nasal *n* regularly becomes domal *n* under the conditions stated in Whitney 189, the dental sibilant *s* becomes domal *ṣ* by Whitney 180, a dental immediately following a domal in the same word is mostly domalized (details in Whitney 196 ff.)

39 Further, by regular phonetic development, IE palatals under certain conditions (notably before IE dentals and in final position) become domals, and a following dental is then also made domal. See Whitney 218, 219, 222, Wackernagel I §§ 120, 149.

IE root *dīk* Skt *diṣati* 'shows,' but participle *diṣta* 'shown'

IE root *yeg̃*, zero grade *iḡ*, 'revere' Skt. *yajati* 'worships,' but pple *ṛta* (Contrast IE root *yug*, with velar *g* Skt *yug a(m)* 'yoke' and *yu* 'yoming' (chiefly in cpds), pple *yukta* )

40 The IE palatal voiced aspirate *ǵh* combined with following dental, most commonly *t*, in prehistoric Indo-Iranian, forming the cluster *\*ǵdh*, for theoretical IE *ǵh t* which became (perhaps in IE itself) *ǵdh* (just so in Skt we regularly find theoretical *gh t*, *dh t*, *bh t* becoming respectively *gdh*, *ddh*, *bdh*, Whitney 160). This *\*ǵdh* in Skt lost the voiced sibilant, which however left its trace in domalization of *dh* to *ḍh*, and lengthening of a preceding short vowel.

IE root *leyǵh* *liǵh* 'lick' Skt *lihati* 'licks,' but participle *liḍha* 'licked' Here a theoretical IE *\*liǵh to* became first, perhaps in IE itself, *liǵ dho* which became Indo-Iranian *liḥdha*, Skt *liḍha*.

41 Aside from the cases of §§ 38-40, the Sanskrit domals do not occur in genuinely native Sanskrit words.

42 The words containing them are partly non-Aryan, partly of Middle Indic origin: in either case, borrowed from dialects other than that on which Sanskrit is primarily based.

43 In many Middle Indic dialects, Sanskrit dentals have become domals: in some cases universally, in others in certain phonetic surroundings, especially when a Skt consonantal or vocalic *r* (which has domal articulation in Skt) adjoined the dental. Many such words were borrowed from these Middle Indic dialects into Sanskrit itself.

44 Thus the Sanskrit word *kṛta* 'made' became in many MI dialects *kata*, the change of *r* to *a* is also MIndic, domal *t* is due to the original *r*. This *kata*, in certain compounds, was borrowed into Skt e.g. Skt. *vikata* 'distorted, ugly'. But the genuine Skt *vikṛta* likewise exists, meaning 'modified, altered' but also 'malformed, disfigured, maimed' and the like. This and many similar cases prove that the domals in words of this type, are really foreign to original Sanskrit, even if of Indo-European origin they are the result of Middle Indic sound changes, and appear in Skt only by borrowing.

45 *Sanskrit h*. This sound a 'murmured' *h* or voiced glottal spirant, is classed by the Hindus as phonetically a guttural. Historically, we have already seen that it is the regular representative of IE *gh* the palatal voiced aspirate, under all circumstances, and of IE *gh*, *gʷh*, the velar and labiovelar voiced aspirates, before IE front vowels and semivowels. Structurally it may be regarded as the aspirate corresponding to Skt *ḥ* (palatal).

46 But also, *h* not infrequently replaces *dh*. So to root *dha* 'place,' the past passive participle is *hita* (for *dhita*). In a very few cases, also, it represents *bh* the root *grabh* 'seize' also appears as *grah*. The conditions under which *h* replaced *dh* and *bh* are obscure, but doubtless dialectal (i.e. due to dialect loans, as in the case of many domals). It is worth noting that many Middle Indic dialects replace most Skt aspirate stops (primarily between vowels) by *h*.

47 *The Sanskrit palatal aspirates*. Skt. *ch* and *ḥ* are said by the Hindu phoneticians to stand in the same relation to *c* and *ḥ* that the other aspirates do to the non aspirates. But historically and structurally the case is otherwise.

48 *ḥ* exists only in loanwords (from either Middle Indic or non-Aryan dialects), and in a few sound imitative words. It is in other words hardly a normal Skt. phoneme. Cf. § 45, the aspirate to *ḥ* is *b*.

49 *ch* also occurs in some loanwords. When derived directly from IE, it is the resultant of a combination of IE *s* with *k* or *kh* (possibly also *k*, *kh*). Consistent with this origin is the fact that *ch* is always a double or long consonant even if a preceding vowel is short, the syllable is prosodically long as always before more than

one consonant. It is often written double, that is, preceded by *c*; but there can be no really meaningful distinction between *ch* and *cch*; some rules are given, but it is nothing but a matter of orthographic convention.

50. IE *sk̑*, *skh* = Skt. *ch*

IE *gʷm-sk̑eti* 'goes': Skt. *gacchati* (usually written *gacchati*); Gk. *βάσσω*.

IE root *skhid* 'split': Skt. root *chid-* 'split'; Gk. *σχίζω*; Lat. *scindō*. (Some, on the basis of Baltic forms, assume IE *skh-* here)

### Vowels

51. There were three IE short vowels, *a*, *e*, *o*; and three long vowels, *ā*, *ē*, *ō*. Sanskrit has merged each set of three into a single vowel which we write *a*, *ā*. We have seen in § 27 that it nevertheless shows some traces of the original distinction, at any rate of that between *e*, *ē* on the one hand, and *a*, *o*, *ā*, *ō* on the other.

52. IE *a* = Skt. *a*

IE *agros* 'field': Skt. *ajra-* 'field, plain'; Gk. *ἀγρός*; Lat. *ager*; Gth. *akrs*, Ger. *Acker*, Eng. *acre*.

53. IE *ā* = Skt. *ā*

IE *bhrātor-*, *bhrāter-*: Skt. *bhrātar-*; Gk. *φράτηρ* 'tribesman'; Lat. *frāter*; Gth. *brōþar*, Eng. *brother*, Lith. *broterelis* (dim.); OSlav. *bratrъ*, *bratъ*. (The latter may represent the IE nom *eg-bhrātē*, *bhrātō*: Skt. *bhrātā*; but the relation of the two forms is disputed.)

54. IE *e* = Skt. *a*

IE *esti* ' (he, she, it) is': Skt. *asti*, Gk. *ἐστί*, Lat. *est*; Ger. *ist*, (Old) Luth. *esti*; OSlav. *{j}estъ*, Russ. *{y}estj*.

55. IE *ō* = Skt. *ā*

IE root *dhē-* 'put, place': Skt. *dhā-*, as in *dadhāti* 'puts, places', *dhāna-* 'receptacle, place for setting (something)'; Gk. *τίθημι* 'I place', *ἔθηκα* 'I placed'; Lat. *fēcī* (originally) 'I placed,' and *con-dō* 'I put together'; OSaxon *de-da*, OHG. *te-ta* 'I did'; OSlav. *děja*, *děti* 'place,' Russ. *djetj* 'to put.'

IE *sēma* (adv., and prefix) 'one-half'; Skt. *sāmi* (chiefly in compounds); Gk. *ἡμι-* (only in cpds); Lat. *sēmi*; OHG. *sāmi*.

## 56 IE o = Skt a

IE *poti* 'lord, husband' Skt *pati* 'lord, husband', Gk *ποτις* 'husband', Lat *\*potis* 'able' (possum for *potis sum* 'I am able'), Gth *fapa* 'lord' (in *brup fapa* 'bride lord bridegroom' *hunda fapa* 'lord of a hundred, centurion'), Lth *patis*, *pats* 'husband'

Fem IE *potni* 'lady, mistress, wife' Skt *patni*, Gk *ποτνια*, GLth *patni* 'mistress, female possessor'

57 IE  $\delta$  = Skt.  $\bar{a}$ 

IE root *do* 'give' Skt *da-da ti* 'gives,' *dana* 'gift', Gk. *δι-δω-μι* 'I give,' *δω-πον* 'gift', Lat. *do-num*, Lth *duo ti* 'to give', GSlav *da ti*, Russ *datj* 'to give,' OSlav *darъ* 'gift,' (antiquated) Russ *dar*, cf Russ *dárom* ' (as a gift,) for nothing, in vain '

## Semivowels

58 IE had six phonemes called semivowels, each of which could function as a vowel, as a consonant, or as a vowel plus a (homorganic) consonant. In these three forms they were

Vocalic form	Consonantal form	Vocalic plus consonantal
i	y	iy
u	w	uw
r	r	rr
l	l	ll
m	m	mm
n	n	nn

59 We call each of these six units a *phoneme*, that is, a 'minimum unit of distinctive sound feature' (L. Bloomfield, *Language* 79). It is characteristic of a phoneme that, while it may be pronounced differently under different conditions these differences of pronunciation are automatically regulated by the surrounding features. The various phonetically differing forms of a phoneme are called its *positional variants* or *allophones*. Thus i, y, and iy are three allophones of a single phoneme. It doesn't matter what sign we choose to represent a phoneme but we might use /y/ for this one, and /w r l m n/ for the other five semivowels of IE. Slanting bars are used to enclose phonemes, in writing and print.

## 60 The conditions determining each positional variant of a semi



65 IE  $i =$  Skt  $i$ 

IE  $gw_i$  'sheep' Skt  $av_i$  Gk  $\delta(\rho)\alpha$  Lat  $ovis$ , OIr  $oi$  Gth  $awi$  str 'sheep fold' OE  $cowe$   $ewu$  (Eng  $ewe$ ), Lith  $avis$  'sheep' OSlav  $ovl-tsa$  Russ  $ovtsá$  'sheep'

66 IE  $y =$  Skt  $y$  (except as in II (2) § 60)

IE  $yugo$  (m) 'yoke' Skt  $yuga$  m Gk  $\zetaυγον$ , Lat  $jugum$  Gth  $juk$  OE  $geoc$  (Eng  $yoke$ ) Ger  $Joch$  OSlav Russ (antiquated)  $igo$  (from  $yugom > *jugo > *jgo$  by assimilation  $> igo$ ) 'yoke'

67 But after a vowel and before a consonant (II (2) § 60) or at the end of an utterance that is when forming what is called a *diphthong* (IE  $ay$   $ey$   $oy$   $āy$   $ēy$   $ōy$ ) before a consonant or in sentence final  $y$  has special treatment in Skt, and it often has in other IE languages. The diphthongs containing  $y$  (and  $w$ ) have a tendency all over the IE field to change to monophthongs, that is vowel plus consonantal semivowel  $y$  or  $w$  (especially when followed by a consonant or final) often becomes some sort of simple vowel

68 In Sanskrit IE  $ay$   $ey$   $oy$  are all treated alike (since as we saw IE  $a$   $e$   $o$  all become  $a$ ) and all become a monophthong  $e$  when followed by a consonant or at the end of an utterance

Thus  $e$  however is *always* long (Sanskrit has no short  $e$  vowel)

69 IE  $ay =$  Skt.  $e$ 

IE  $aydho$  'fire burning firewood' Skt.  $edhas$  'firewood', Gk  $αἶθος$  (nt) 'fire'

Also IF  $aydho$  same  $rrg$  Skt  $edha$  'firewood', Gk  $αἶθος$  (m), 'fire' cf Lat  $sed-as$  hearth home', OF  $ād$  OIIG  $eit$  'funeral pyre'

70 IE  $ey =$  Skt.  $e$ 

IF root  $deyk$  'point out' Skt  $di-deṣṭi$  'points  $deṣa$  ' (direction) region' Gk.  $δείκνυμι$  'I show' OLat  $deico$  Lat  $dēo$  'I say' (orig. show) Gth  $gataih-an$  'to indicate' OF  $ton$  OIIC  $zihan$  (Ger  $ze hen$ ) 'to accuse' (OIIG  $ze gōn$  Ger  $zugen$  from IF  $doyk$  § 71 with  $g$  by Verner's law § 12 probably d nominative)

71 IE  $oy =$  Skt.  $e$ 

IF  $woyda$  'I have seen' I know' perfect to root  $weyd$  see Skt.  $veda$  'I know' Gk  $(\rho)\omegaῖδα$  'I know' (cf  $\epsilonἶδον$  'I saw')



Gth. wait, Eng. wot, Ger. weiss 'I know'; OPrussian (a Baltic language) waisse 'thou knowest.'

72. The long y diphthongs—combinations of IE ā, ē, ō with y—remain long diphthongs in Skt, they are commonly transcribed āi (or ai).

73. IE āy = Skt. āi

In dat. sg. ending of fem. ā-stems, IE -āy: Skt. -āi (e.g. senāy-āi); Gk. -α (—āy; e.g. χόρ-α); Lat. mēns-ae.

74. IE ēy = Skt. āi

In stem syllable of s-aorist of roots containing y: IE e-lēyk<sup>w</sup>-am(m) (before vowel -nam, before consonant -m) 'I left': Skt. āraiksam; Gk. ἔλεψα (each generalizing one of the two alternants).

75. IE ōy = Skt. āi

In dat. sg. ending of o-stems, IE -ōy: Skt. (dev-)āy(-a) 'to a god'; Gk. (ἱερ-)α; Praenestine (Italic) (Numasi-)oi (Lat. -ō); Lith. (vilk-)ui 'to a wolf.'

76. IE u, w, and nw behave in Skt. quite analogously to IE i, y, iy. Here w appears as a sound transcribed v (actually pronounced in some positions as w), n as n. The diphthongs aw, ew, ow appear as Skt. o (always long! like Skt. e), and āw, ēw, ōw, as (what we write as) āu (or au).

77. IE u = Skt. n

IE yugo- 'yoke,' etc., see § 66

78. IE w = Skt. v

IE woyda 'I know,' etc., see § 71.

79. IE aw = Skt. o

IE root awg- 'increase, strengthen', IE awges, awgos- 'strength': Skt. ojas 'strength'; Lat. augus-tus 'mighty, exalted' Cf. Lat. aug-eō 'I increase', Gth. aukan, OE. ēacian 'to increase,' Eng. eke (verb and adverb).

80. IE ew = Skt. o

IE root lewk- and lowk- 'shine.' IE lewk-etay 'shines'; Skt. roc-ate 'shines.' Cf. Gk. λακός 'shining, white'; Gth. luhap 'light,' OE. leoht, Eng. light.

## 81 IE ow = Skt. o

IE lowk, see preceding Forms from IE ow (rather than ew) are IE (causative) lowkeyeti 'makes to shine' Skt. rocayati same mg, Lat. luceo (originally transitive in OLat 'light (a lamp)' later intrans), IE lowko 'light space' Skt. loka 'world', OLat loucom (acc) Lat. lucus 'clearing in a wood grove' cf Lat. collucare 'to thin out (a forest)' OE lēah (Eng. lea), ON lo Dutch lo loo (Water loo) 'meadow' (= clear space)

## 82 IE aw = Skt. au

IE naw, nom. naws ship Skt. nau (s), Gk. ναῦς (gen. νηός for \**nefos*), Lat. navis (has become an i stem), OIr. náu, ON nōr OE no-wend 'shipmaster sailor'

## 83 IE ēw = Skt. au

IE dyew (s nom sg) 'sky god of heaven' Skt. dyau (s), Gk. Ζεύς (for older \**Zē s*) (Lat. Jupiter Juppiter from IE dyew, voc. used as nom) ON Týr OE (Tig) gen. Tīwes (Eng. Tuesday, 'Tig's day')

## 84 IE ow = Skt. au

IE g<sup>w</sup>ow (s nom) 'cow ox' Skt. gau (s), Gk. βου (acc dialectal βων) (Lat. bos loan from an Italic dialect, with vowel taken from acc. IE g<sup>w</sup>om) OE cu Eng. cow

85 The vocalic-consonantal forms of the phonemes /y w/, namely iy uw require no special treatment in Sanskrit, they appear as Skt. iy uv exactly as if i plus y u plus w

86 Coming to the four other semivowel phonemes IE /r l m n/ their Sanskrit developments are in some ways simpler in others more complicated than IE /y w/ The perfect parallelism between the six IE semivowels has partly broken down in Sanskrit.

87 As to the diphthongal forms which required special treatment for /y w/ no such special treatment is needed for /r l m n/ After any IE vowel (a e o ā ē o) appearing in Skt. as a or ā If r l m n are treated as any other r l m n (after a consonant or initially) We don't need therefore to state special rules for IE ar, er or etc. in Skt

88 The chief complications concerning /r l m n/ are the following

- 1 The phonemes /r/ and /l/ in vocalic and consonantal and

vocalic plus consonantal forms, both merged in one phoneme /r/ in prehistoric Indo-Iranian. They have that form in Old Iranian (Avestan and Old Persian). In Sanskrit, /r/ was introduced secondarily, for Indo-Iranian /r/ in some occurrences still in prehistoric times. But since it always has passed through a stage when there was only /r/, Skt /r/ shows no correlation with IE /r/, it just as often represents IE /r/ and Skt /r/ represents IE /r/ as often as IE /r/.

2 The vocalic-consonantal allophones of IE /r l/, namely IE *r*, *l* appear in Sanskrit as *ir* or *ur* (or, less commonly, as *il*, *ul*, because of the preceding law)

3 The vocalic allophones of /m n/ namely IE *m*, *n* appear in Skt alike as *a*. And so IE *mn* appears as Skt *am* IE *nn* as Skt *an*. Greek has the same treatment *a* for IE *m*, *n*.

89 IE *r* = Skt *r*

IE *r̥k̥s* Skt *r̥k̥sa* 'bear' (the animal), etc., see § 36

90 IE *l* = Skt. *r*

IE *wlk̥s* 'wolf' Skt *vr̥ka*, Gth *wulfs*, Eng *wolf*, Lith *vilkas*, Oslav *vĺk̥s* Russ *volk* 'wolf' (The *f* of Germanic must have replaced an older *hw*, just how or why is disputed)

Note every provable IE *l* in Skt appears only as *r*. In fact, Skt *l* is found only in forms of the single root *klp* 'fashion, form' e.g. *kl̥pta* 'formed' nowhere else. The etymology of this root is doubtful some think it related to Lat *corpus* 'body', if so Skt *l* would be from IE *r* in the single root which shows it.

91 IE *r* = Skt. *r* or *l*

IE root *reudh*, *roudh*, *rudh* 'red'. The other languages than Indo-Iranian show only *r*. Gk *ερυθρ* 'red', *ερυθρος* 'red', Lat. *rubidus*, *ruber*, etc., Gth *raun̥s* 'red' OE *read* Eng *red*, Lith. *raudas* 'red', Oslav *rud̥s* 'red' *ruda* (Russ *ruda*) 'ore' (originally 'ruddy'). But Skt *loh* 'reddish' as noun 'copper, metal', *lohita* and *rohita*, both 'ruddy', *rudhira* 'red,' as noun 'blood' etc.

92 IE *l* = Skt *r* or *l*

IE root *lew̥k*, *low̥k* 'shine', see above §§ 80-81. Note that all IE languages except Indo-Iranian show only *l* in this root, never *r*. But Skt *rocate* 'shines' (IE *lewketay*), *roca* 'shining' (IE

lewke ), roots 'ray of light,' and many other forms with *r*. On the other hand, Skt *loka* 'world' (orig 'light space', IE *lowko-*), *lokate* and *locate* 'sees', *locana* 'illuminating', as noun, 'eye', and many other forms with *l*.

93 These examples are typical, and show clearly that in the same or related words, Skt. *l* and *r* both appear for IE *r* or *l*.

94. In the Rigveda, *r* is very much commoner, *l* is quite rare. In other words, the Rigveda is still fairly close to Indo-Iranian, which had only *r* for both. In later Skt, *l* increases in frequency, replacing Rigvedic *r* in some words, but it never becomes as common as *r*.

95 There are however some Middle Indic dialects which have only *l*, replacing *r* everywhere.

96 No law can be discerned by which Skt chooses between *r* and *l*. Apparently it was a matter of dialect mixture. Some dialects changed Indo-Iranian *r* to *l*, either universally (as we just saw), or under conditions unknown to us. Sanskrit is a primarily *r* dialect, which has borrowed from *l* dialects rather extensively.

97. In any case, there is no correlation between either *l* or *r* of Skt and either *l* or *r* of IE.

98 As stated above, IE *r* and *l*, the vocalic-consonantal allophones of the phonemes /*r l*/, appear in Sanskrit as *ir* or *ur* (or more rarely as *il* or *ul*, by the rule just stated). To put it otherwise, before IE consonantal *r, l*, IE vocalic *r, l* became either *i* or *u* in Skt. No definite principle as to the choice between *i* and *u* has been discovered, but *u* prevails after labial consonants (*p, ph, b, bh, m, v*), otherwise *i* is usual.

99 The combinations *rr, ll* occurred, in IE times, only after a consonant and before a vowel, and only when the preceding consonant was itself preceded by another consonant or a long vowel (i.e. when the preceding syllable was prosodically long), or when the preceding consonant was initial in a speech utterance (§ 60, III). But in Skt these conditions no longer hold fully, Skt *ir, ur (il, ul)* from IE *rr, ll*, as well as the descendants of the parallel allophones of the other semivowels (IE *ry, uw, r̥m, ɳn*), sometimes occur when the preceding consonant is preceded by a short vowel, also in absolutely initial position, when there is no preceding consonant, and even before a consonant.

100. IE  $\text{r}$  = Skt.  $\text{ir}$  (il),  $\text{ur}$  (ul)

IE  $\text{g}^{\text{w}}\text{r}\text{eti}$  'swallows': Skt. girati and gīlati 'swallows'; cf. Gk. βορῆς 'gobbling, greedy'; Lat. (carni-)vorus. When a short vowel precedes, IE  $\text{g}^{\text{w}}\text{r-}$  replaces  $\text{g}^{\text{w}}\text{r-}$ : Skt. (Rigveda) (tuvi-)gra- ' (mightily) swallowing.'

IE  $\text{g}^{\text{w}}\text{r}\text{etay}$  'lifts up the voice,' esp. 'praises,' but also 'cries out': Skt. gurate 'greet with joy'; related to Lat. grātus 'welcome, pleasing'; and to Lath. gīrti 'praise.'

101. IE  $\text{l}$  = Skt.  $\text{ir}$  (il),  $\text{ur}$  (ul)

IE  $\text{pllo-}$ ,  $\text{plli-}$  'stronghold': Skt. pura-, purī- 'stronghold'; Gk. πόλις 'city', Lath. pīlls 'stronghold, castle.'

IE  $\text{pllu-}$  'much' (beside  $\text{plu-}$  after short vowel): Skt. puru- 'much'; Gk. πολύς, Gth. filu (Ger. viel); somehow related is Lat. plūs.

102. IE vocalic  $\text{m}$ ,  $\text{n}$  both became Skt.  $\text{a}$ . Greek also has  $\text{a}$ . The other IE languages usually replace the vocalic nasal by a consonantal nasal preceded by a vowel, which varies from language to language. Lat. em, en (sometimes im, in), Germanic um, un; Lath. im, in; OSlav. ę (a nasalized  $\text{e}$ ), which became Russian ja.

103. IE  $\text{m}$  = Skt.  $\text{a}$ 

IE kṛntom '100' Skt. śatam, Avestan satəm, Gk. (*i-*)κατόν; Lat. centum, OIr. cét, Gth. hund, Lath. šimtas, (OSlav. sъto, whence Russ. sto, irregular, thought by many to be a borrowed word. Expected would be OSlav. \*sъto, Russ. \*sjató, some think a form of this is contained in the final member of the Slav. word for '1000,' OSlav. tysešta, Russ. týsjacha, orig. 'strong hundred').

104. IE  $\text{n}$  = Skt.  $\text{a}$ 

IE  $\text{n-}$  'not,' negative prefix, in composition. Skt. a-(mṛta-, 'immortal'); Gk. ά-(μβροτος, 'immortal'), OLat. en-, Class Lat. in-, Gth. OE. and general Gmc. un- (Before vowels, Skt. and Gk. an- from IE ṇn-, originally only used after a word ending in a consonant preceded by another consonant or by a long vowel, but generalized by analogy of the numerous forms in a- plus consonant)

105. IE vocalic-consonantal mm, nn appear, as we should expect, as am, an in Skt and Gk (cf. § 104). Their treatment in the other languages need not be discussed here: in Old Slavic they became bm, bn.

106 IE m = Skt m

IE root men (mon) 'think' IE menos 'mind thought' Skt manas, Gk μένος Many related words from the same root showing m n e g Lat me mīnī 'I remember', Gth (preterite-present) man 'I believe' (orig 'have thought'), OE man (same mg)

107 IE n = Skt n

IE root men (mon) 'think,' § 106

### Ablaut

108 We have not yet listed all the IE phonemes which, phonetically, functioned as vowels. Before naming the rest it is desirable to discuss what is called IE Ablaut.

109 Ablaut means systematic correspondence between different vowels (or lack of them 'zero vocalism'). It is sometimes called in English *vowel gradation*. Whenever different vowel phonemes appear in related words we may speak of Ablaut, as in English sing sang, sung, song.

110 In Indo-European, we speak of *qualitative* and *quantitative* Ablaut.

111 Qualitative Ablaut is variation between vowels of different phonetic quality. In IE the varying vowels are usually e and o (also ē and ō), sometimes, but much more rarely, a and ɔ (also ā and ȳ). (But never a and e.)

112 Quantitative Ablaut is variation between vowels which differ in quantity. In IE we find variation between e and ē, between o and ō, between a and ā and between any of these vowels and zero (total loss of vowel).

113 Often indeed typically IE shows qualitative and quantitative Ablaut combined in one group of related words. That is e g, e varies with ē and with zero but also with ɔ or ȳ.

114. The typical primary scheme of IE ablaut shows three quantitative and two qualitative grades of vocalism. The quantitative are the *lengthened grade* or *Dehnstufe*, *normal* (or *full*, or *strong*) *grade*, and *zero grade* (or *weak grade*). The qualitative are called *e grade* (in a few cases *a grade* instead) and *ɔ grade*. Thus, stem ped, pod 'foot'

Lengthened e	ō	Lat	pes (*peds)	Doric Gk	πῶς (*pods)
Normal	e o	Lat	ped is	Gk	ποδός
Zero	—	(no vowel)	Avestan	fra bd a	'forefoot'
			(bd for pd)		

115 Such variations were, in IE, not random. Originally they occurred each in prescribed situations or conditions. The normal e grade was originally accented, its reduction to the zero grade accompanied, and was conditioned by, shift of the accent to another syllable. Many believe that the lengthened grade resulted from loss of an originally following syllable. The conditions of o grade vocalism are much more obscure, and indeed still await any satisfactory explanation. But, to a considerable extent, each grade of Ablaut, qualitative as well as quantitative, seems to have occurred in IE in certain specific and typical situations.

116 For example, in present forms of what are called 'root class' verba, the singular active was regularly formed by adding the personal endings to the root in its normal e grade, which was accented. IE *és ti* 'he, she, it is' Skt *ásti*, Gk *ἐστί* (with shift of accent), Lat *est*, OLoth *esti*. But the dual and plural were formed by adding the endings to the zero grade of the same root. IE *s énti* (or *s-onti*) 'they are' Skt *s-ánti*, Lat *sunt*.

117 Since we have seen that IE *a, e, o* all merged in Skt. *a*, and IE *a, e, o* in Skt. *a*, it is evident that IE *qualitative* Ablaut cannot remain in Skt. (At least not directly, in the quality of the vowels. We have seen, § 27, that it nevertheless has left an indirect trace, before Skt. *a*, a from IE *e, e*, the IE velars and labiovelars become Skt. palatals, just as before IE *i, i, y*.) There is nothing in the Skt. vowels *a, ā* to show whether *a* comes from IE *a, e*, or *o*, and *ā* from IE *a, e*, or *o*. We can therefore largely ignore IE *qualitative* Ablaut in Sanskrit.

118 *Ablaut of roots containing semivowels*. Often, in the normal grade, IE had a semivowel after the vowel. This semivowel, in this position, had to be consonantal, by the phonemic law determining pronunciation of IE semivowels, § 60, II (1) and (2). Less commonly, IE had a semivowel before the vowel, this had to be either consonantal, or vocalic plus consonantal, according to what preceded (§ 60, II (3) and III). In either case, the disappearance of the normal grade vowel compelled the semivowel

(before a consonant or final) to assume vocalic function in the zero grade (§ 60, I) That is, to normal grade *ey oy ay* or *ye yo ya* corresponded zero grade *i* And so zero grade *u* corresponded to normal grade *ew* etc, *we* etc, *r* to *er* etc *re* etc and so on Thus we get schemes of quantitative Ablaut like the following in which the normal grade shows a vowel plus consonantal semivowel (a diphthong), while the zero grade has only a vocalic semivowel (Similar systems existed less often in which *e o* or *a* followed the semivowel in the normal grade)—The lengthened grade in most roots was in IE much rarer than the other two Secondary developments in Skt made it much commoner there In §§ 121 126 are quoted only a few cases of lengthened grade forms which may with reasonable confidence be assumed to be IE inheritances in many roots these are hard to find

### 119 Indo European

Lengthened grade	ey(oy)	ew(ow)	er(or)	el(ol)	em(om)	en(on)
Normal grade	ey(oy)	ew(ow)	er(or)	el(ol)	em(om)	en(on)
Zero grade	i	u	r	l	m	n

which in Sanskrit appear as

Lengthened grade	ai	au	ar(al)	ar(al)	am	an
Normal grade	e	o	ar(al)	ar(al)	am	an
Zero grade	i	u	r	l	a	a

120 In a complete statement it would have to be added that before a following vowel (of a suffix or of another word) the zero grade as stated above would be replaced by the consonantal or (according to what precedes § 60 III) the vocalic plus consonantal form of the semivowel that is by

Indo European	y(iy)	w(uw)	<u>r(r) l(l)</u>	m(mm)	n(nn)
= Sanskrit	y(iy)	v(uv)	r or l (ir ur il ul)	m(am)	n(an)

120a The Hindu grammarians treated these same phenomena in their own fashion as the *guna vṛddhi* system tabulated in Whitney 236 They regarded our zero grade as basic and gave it no name From it they derived the *guna* (our normal) grade by prefixing (Skt) *a* (IE *e o a*) whereas we reverse this theory by starting with the normal or *guna* grade and assuming loss of the vowel in the zero grade Our lengthened grade is the Hindu



*ṛddhi*: they regarded it as formed by prefixing (Skt.) *a* to the normal grade (*guṇa*).

120b. The Skt. *a*-vowels do not really fit into the pattern set up by the Hindus. This is illustrated by the fact that they put *a* (and even *ā*) into both the *guṇa* and the (by them unnamed) zero grade. Actually, in original IE, the vowels *a*, *e*, *u* (= Skt. *a*) occurred only in the normal grade (Hindu *guṇa*), and *ā*, *ē*, *ō* (= Skt. *ā*) only in the lengthened grade (Hindu *ṛddhi*), except in 'heavy bases' (see § 127) where IE *ā*, *ē*, *ō* (Skt. *ā*) occurred in the normal grade. In the zero grade there was originally no vowel at all. Forms which show Skt. *a* in positions requiring zero grade vocalism are analogical, although some such analogical forms may have been created, secondarily, in late forms of IE itself.

*Examples of Ablaut systems in roots containing semivowels*

121. *Roots containing y*: IE *ey* (*uy*), *i*, 'go.'

*Normal grade*: IE *ey-mi* 'I go': Skt. *é-mi*; Gk. *ἔ-μῖ*; Lith. *ei-mi* 'I go.' Same grade in Slavic *i-ti* 'to go.'

*Zero grade*: IE *i-te* (or *i-the*) 'ye go': Skt. *i-thá*; Gk. *ἴ-τε* 'ye go.' Same grade in Lat. *i-tiō* 'going, motion.'

122. *Roots containing w*: IE *klew* (*klow*), *klu*, 'hear.'

*Lengthened grade*: IE *klēw-*: Skt. aorist *a-ḡrāu-ṣit* 'he heard.'

*Normal grade*: IE *klew-ter-* 'one who hears': Skt. *ḡro-tar-*. IE *klew-os-* 'fame': Skt. *ḡravas-*; Gk. *κλῖ(ς)ος*. Same grade in OHG. *hlu-* (*munt*), Oer. *Leumund* 'reputation, report.'

*Zero grade*: IE *klu-to-* 'heard': Skt. *ḡru-ta-* 'heard'; Gk. *κλυτός* 'famous'; Lat. *in-clutus* 'famous'; prior element in Germanic proper names like OHG. *Hlud-* (*erich*), OE. *Hloþ-* (*wig*) (Ger. *Ludwig*).

123. *Roots containing r*: IE *bher* (*bhor*), *bhr̥* 'bear, carry.'

*Lengthened grade*: (o-grade) IE *bhōr-*: in Skt. *bhāra-* 'burden'; and in Ok. *φύρ*, *φωρός* 'thief'; *φωριμὸς* 'chest for packing clothes.'

*Normal grade*: IE *bher-ō* 'I bear': Skt. *bharā(mi)*; Gk. *φέρω*; Lat. *ferō*; Gth. *baira*, Eng. *bear*; OSlav. *bera*, Russ. *hjerú* 'I take.'

*Zero grade*: IE *bhr̥-ti-* 'carrying': Skt. *bhrti-* 'carrying; maintenance, salary'; Lat. *fors*, abl. *forte* 'chance' (a 'bringing')

of fate), fortuna, Gth *ga baurþs* 'birth,' Eng *birth*, *burden* (older *burthen*)

124. *Roots containing* ! IE *wel* (*wol*), *wl* 'will, wish, choose'

*Normal grade* IE *welo-* (*wolo-*) Skt *vara* (probably IE *welo-*) 'choice, wish, (adj) choice, excellent' Same grade in Lat. *volo* (older *velo*) Gth *wiljan* 'will' and (o grade) *waljan* 'choose' (Ger *wahlen*), Lth *pa vel mi* 'I will', GSlav *vel ja*, Russ *vjelju* 'I command,' and (o grade) GSlav Russ *vólja* 'free will'

*Zero grade* IE *wlto* 'chosen, wished' Skt *vrta* Same grade in Lth *viltis* 'hope' ('wish', IE *wlfi*)

125 *Roots containing m* IE *g<sup>w</sup>em* (*g<sup>w</sup>om*), *g<sup>w</sup>m*, 'go, come'

*Normal grade* (o-grade) IE *g<sup>w</sup>e-g<sup>w</sup>om a* 'I went' Skt *jagama* 'I went', Gth *qam* 'I came' (to infin *quman* 'to come' from IE *g<sup>w</sup>em*) (Eng *come* and Ger *kommen* are from zero-grade forms)

*Zero grade* IE *g<sup>w</sup>mti* 'going coming' (noun) Skt *gati* 'going, gait, course', Gk *βασίς* 'step tread, basis', Lat *in venti-o* 'coming at, invention', Gth *ga-qumþs* 'meeting' From the same grade Gk *βαίω* 'go' and Lat *venio* 'come,' but there are difficulties and obscurities about both

126 *Roots containing n* IE *men* (*mon*), *mn* 'think'

*Lengthened grade* IE *men* Vedic aorist (a) *man sta* 'he thought'

*Normal grade* IE *menos* 'thought' Skt *manas*, Gk *μνος* From IE o grade Gk *με πορ-α*, perfect, 'I think on', cf Lat *memini* 'I remember'

*Zero grade* IE *mn ti* 'act of thinking' Skt *mati*, Lat *mena*, Gth *ga munda* 'recollection' GE *ge mynd*, Eng *mind*, Lth *at mintis* 'recollection', GSlav *pa meťs*, Russ *pámjatj* 'recollection, memory'

127 *Ablaut of Heavy Bases* In some IE roots, a long vowel (a, e, or ô) appears in positions which belong typically to the normal grade, not the lengthened grade, that is, in which most roots show short a, e, or o. Particularly striking are cases in which this long vowel is final in the root. For these are discordant with the phonetic pattern of IE in general. There is no IE root ending in short a, e, o, roots containing these vowels always end in a

consonant (or semivowel, which in the normal grade must always be consonantal in function § 60 above) But, in certain roots, IE long *e* or *a* may end a root Such roots are called *heavy bases*, the others, of the type we have previously talked about, are *light bases* (Some heavy bases however, show consonants after the long vowel of the normal grade, like light bases)

128 The clearest evidence for a heavy base is occurrence of an IE long vowel in normal grade situations, that is, where light bases show an IE short vowel (plus consonant or consonantal semivowel) Such a situation for example, is that form of a root which precedes the IE noun-of-agent suffix *-ter* (*-tor*) Here the root shows normal grade So Skt *bhar tar* (IE *bher ter*, or *-tor*) 'one who bears', *śro tar* (IE *ślew ter*) 'one who hears,' etc But Skt *dha tr* 'one who sets, establishes', *stha tar* 'one who stands', *da tar* 'one who gives' which point to IE *dha ter* or *tor*, *stha tor* (Lat *stator*), *do tor* (Gk *δωτωρ*) These long vowels are not to be taken as lengthened grade forms, that grade does not appear before this suffix The fact that these long vowels may be final in their roots, as in the examples cited confirms our view that they are structurally something different from the IE *a*, *e*, *o* which function as lengthened grades to IE *a*, *e*, *o*

129 *Zero grade of heavy bases* IE *o* 'shua' What happens in the zero grade of these heavy bases? Is even a long IE normal grade vowel lost in them?

130 There are a few forms which seem to look in that direction But they are problematic and probably to be explained otherwise

131 The question should be answered by looking at forms which regularly show zero grade in light bases Such a form is the past passive participle in IE *to-* (or *no-*) Skt *ta* (*na*) Thus, from three light bases cited above IE roots *ey* 'go,' *klew* 'hear,' *bher* 'bear' we have participles Skt *ī ta*, *śru ta*, *bhr ta* (IE *ī to*, *klu to*, *bhr to*), 'gone heard, borne'

132 The *y* participles of the three heavy bases cited above are Skt. *dhi ta* (*hi ta*) *sthi ta*, and (in some compounds) *-di ta* (the usual *datta* is secondary but easily explained)

133 Evidently Skt *ī* corresponds as zero grade to normal grade Skt *ā* whether this be derived from IE *ā*, *ι*, or *o*

134 This Skt *i* cannot be derived from IE *i*, for two reasons (1) No semivowel (*y*) appears in the normal grade forms of these roots (2) In the IE languages outside of Indo Iranian, even the zero grade contains no *i* but rather (usually) the same vowel which otherwise represents IE *a*

135 We must therefore posit a special IE zero grade vowel, which it is customary to call *shwa* (a Hebrew term) and to write *ə*, as the IE zero grade correspondent to normal grade *a* *e*, *ō* in heavy bases

136 We then set up the phonetic law IE *ə* becomes Skt (and Iranian) *i*, but in other IE languages is treated like IE *a*

This is confirmed by at least one word for which no normal grade forms are known, but where the treatment is the same

IE *ə* = Skt *i* (Gk, Lat, Germ *a*)

IE *pater* 'father' Skt *pitar* Gk *pater* Lat *pater*, Gth *fadar*, Eng *father*

137 IE *ə* was maintained, even in IE itself only before consonants (including consonantal semivowels) It was always lost before vowels

138 *Pre Indo European note* According to many scholars of recent times, 'Indo Hittite'—a common fore runner of Indo-European and Hittite—contained four consonants called *laryngeals*. These most of them believe were lost in Indo European, leaving lengthening of a preceding vowel when a consonant followed. Thus this school accounts for the normal grade long vowels of IE heavy bases. IE *a* *e* *o* in these heavy bases are derived from Indo Hittite short vowels plus laryngeal consonants. Thus the heavy bases did not originally end in root final vowels, but in laryngeal consonants, they fit better into the general IE pattern. See Starkevant's *Indo Hittite Laryngeals* (1942) 66 ff

139 It has been suggested that IE *ə* may have been a correspondent of a laryngeal consonant which assumed vocalic function when in the zero grade the normal grade vowel disappeared some what as the IE semivowels did in the same circumstances. Starkevant's view however is different

140 *Dissyllabic bases* Not a few IF roots containing semi vowels show, in their normal grade (before a consonant), dissyllabic

forms, where the roots so far considered (both light and heavy) have monosyllabic forms

141 The simplest and, for our purposes, most interesting of these dissyllabic forms are a group typified by IE *bhewa*, Skt *bhavi* 'become, come to be' Here the first syllable has a normal e grade vowel, a semivowel follows, and the second syllable contains IE *a*, Skt. *i* This and similar forms occur in situations where other roots have monosyllabic elements. So before the agent suffix IE *ter*, *tor*, Skt *bhavi tar* 'one who becomes' contrasts with *gro tar* 'one who hears' (IE *bhewa-tor*, *klew tor*)

142 In the zero grade of such roots, for example in the past passive participle, we should theoretically expect (e g) an IE *\*bhwa to* Perhaps something like that may once have existed Or, instead of *\*wa*, perhaps it was once *u* plus a laryngeal consonant (see §§ 138 9) (We must in theory assume that *e* is always a zero grade to a heavy base normal grade *ā*, *e*, or *ō*)

143 But throughout the whole IE territory we find, instead of any such thing, either a long *ū*, or something which seems clearly to go back to an IE *u* The participle of the root IE *bhewa* was IE *bhū to*, Skt. *bhu ta*, 'become' Similarly from a root IE *neya* 'lead' we get a pple IE *nī to*, Skt. *ni ta* 'led' And while no *ī*, *ī*, *ū*, *ū* is actually preserved as such in historic IE speech, there is good reason to believe that they existed in IE in cases analogous to such *ī* and *u* This assumption is based not only on the general parallelism between the six semivowels It seems confirmed by some of the historic forms found in the zero grade of dissyllabic bases containing *r*, *l*, *m*, *n*, they seem in various ways to recommend the assumption of long vocalic semivowels

144 A set of parallel forms will help to make clear these conditions In each pair of roots, the first is monosyllabic, the second dissyllabic For each root we cite the reconstructed IE, and the actual Sanskrit, noun of agent in IE *ter* or *tor* (Skt. *tar*), with normal grade of root, and the past passive participle in IE *to* or *no-* (Skt. *ta* or *na*), with zero grade (Page 29)

145 We therefore set up six long vowels peculiar to the zero-grade of dissyllabic bases containing semivowels, which phonetically seem to have been lengthenings of the six vocalic forms of the semivowels *i*, *u*, *ī*, *ī*, *ū*, *ū* These were not, in IE, members of

IE root	Normal grade		Zero grade	
	IE	Skt	IE	Skt
ey (oy) i 'go'	ey tor-	e lar- 'one who goes'	i to-	i ta- 'gone'
neya (noya) ni 'lead'	neya tor-	nayī tar-	ni to-	nī ta-
klew (klow) klu 'hear'	klew tor-	cro tar-	klu to-	gru ta-
bhewa (bhowa) bhū 'become'	bhewa tor-	bhavi tar-	bhu to-	bhū ta-
bher (bhor) bhr 'bear'	bher tor-	bhar tar-	bhr to-	bhr ta-
tere (tore) tṛ 'traverse'	tere tor-	tari tar-	tṛ no-	tīr na-
ghwel (ghwel) ghw 'be crooked'	ghwel tor-	hvar tar- <sup>s</sup>	ghw to-	hvy ta-
pela (pole) pl 'fill'	pela tor-	pari tar- <sup>s</sup>	pl no-	pūr na-
men (mon) mn 'think'	men tor- <sup>s</sup>	man tar-	mn to-	ma ta-
gena (gone) gñ 'beget'	gena-tor <sup>s</sup>	jana lar-	gñ to	ja ta-

<sup>s</sup>These forms are cited from Hindu grammarians, other normal grade forms from the same roots confirm them

<sup>s</sup>Cf Latin mentor, genitor

the semivowel phonemes, altho they were derived historically from combinations of the semivowels with some other sounds (either IE *e* or its ancestor, or a laryngeal consonant).

146. In some cases, such as IE *mūs* 'mouse' (below), we find such vowels in isolated words, showing no clear relations with other words. These are presumed to be remnants of otherwise lost Ahlaut systems.

The Sanskrit resultants of these sounds were as follows:

147. IE *i* = Skt. *i*

IE *g<sup>w</sup>iwo-* 'living, alive, lively': Skt. *jīva-* 'alive'; Lat. *vīvus*; Lith. *gývas*; OSlav. *zhivъ*, Russ. *živ.* Related, but seemingly derived from a form with short *i*: Ok. *βίος* 'life'; Gth. *quīs* 'living'; with a suffix derived from IE *-g-*, OE. *cwicu*, Eng. *quick*.

148. IE *ū* = Skt. *ū*

IE *mūs-* 'mouse': Skt. *mūs-*; Gk. *μῦς*; Lat. *mūs*; OE. OHG. (etc.) *mūs*; OSlav. *myšъ*, Russ. *мыш*.

149. IE *ī* = Skt. *īr*, *ūr*

Of. Skt. *īr*, *ūr*, from IE *īr* and *īl*. Instead of *īr*, *ūr*, we might expect to find sometimes *īl*, *ūl*, but no such case has been noted for either IE *ī* or *īl*. After labial consonants, *ūr* is usual, otherwise *īr*; but there are exceptions.

IE *īmo-* 'arm': Skt. *īrma-* 'arm, fore-leg of an animal'; Lat. *armus*; Oth. *arms*, Eng. *arm*; OSlav. *ramo* 'shoulder' (Russ. antiquated and literary, plural only, *ramjená* 'shoulders').

150. IE *ī* = Skt. *īr*, *ūr*

See note under IE *ī*, which applies here also.

IE root (zero grade) *m<sup>h</sup>dh-* 'top' or the like: Skt. *mūrdh-an-* 'head, top'; Gk. *βλῶθ-ρός*, 'tall,' for *\*μ(β)λ*, cf. *ἀ-μ(β)ροτος* 'immortal'; OE. *molda* 'top of the head.'

151. IE *m̃* = Skt. *ā*

IE *ǵm̃-ro-*: Skt. *jā-ra-*, 'suitor, lover'; related to Gk. *γαμβρός* 'son-in-law' and to the root of Gk. *γαμέω* 'marry.' (A related form in lengthened grade: Skt. *jām-ātar-* 'son-in-law.') Probably from IE *ǵm̃-* with a different suffix: OSlav. *zъtъ*, Russ. *zjatj* 'son-in-law.'

Note: the Skt. participles of dissyllabic roots containing *m* are all formed like IE *dema-*, Skt. *dama-(tar-)* 'subdue,' past pple. Skt.

danta 'subdued' This is best regarded as for original \*dā ta (IE dñ to-) with nasal (originally m, assimilated to n before t) and logically inserted under the influence of normal and lengthened grade forms

### 152 IE ñ = Skt. a

IE ḡñ to- 'born' (pple to ḡenā) Skt jata 'born', Lat (g)nātus (cf cognatus), Gth (himma)kunda 'heaven born,' OE (beofon)cund

Note an intrusive nasal is very much rarer in the participles of dissyllabic roots containing n than in those with m, but it occurs in Skt pple dhvanta 'sounded' (normal grade dhvani 'sound')

### 153 Table of Sanskrit Vowels with their possible IE originals

Skt a from	IE a, e, o, m, n
a	a, e, o, ī, ū
i	i, e (and Skt ir, il from īr, il)
ī	i (and Skt ir from īr, il)
u	u (and Skt ur, ul from ūr, ul)
ū	u (and Skt ur from ūr, ul)
r	r, l
l	(only Skt root klp perhaps IE r)
ṛ	See*
(ṛ does not occur)	
e	ay, ey, oy
ai	ay, ēy, oy
o	aw, ew, ow
au	aw, ew, ow

\* Skt r occurs only in the acc pl and gen pl and nom acc pl neuter endings of noun stems in r e g dātṛā dātṛān It has no prehistory since these endings are late analogical creations in imitation of the corresponding cases of i and u stem nouns The analogical proportion would be

agnibhis agnīm agnīnām =  
 çatrubhis çatṛīm çatṛīnām =  
 dātṛbhis dātṛīm dātṛīnām



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